Technical Data / Instruction Manual

JSM-02C-230V-2A

Article no. 80022512

Blind Control Module

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1. Notes on documentation

These instructions are intended for qualified personnel who are familiar with the assembly, installation and operation of the ISYGLT system. It is essential that you read these operating instructions through before commissioning and keep them accessible for further use.
SEEBACHER cannot accept any liability for damage or malfunctions resulting from failure to observe these instructions.

1.1. Retention of documents

These instructions and all other applicable documents are part of the product. They must be handed over to the device operator. The operator will store the documents so that they can be made available if necessary.

1.2. Symbols used

Observe the following safety and other instructions in the manual:

Handling instruction
The hand indicates that you should carry out an act.

Danger!
Immediate danger to life!

Attention!
General notes, useful information and special features

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2. Safety instructions

Observe the following general safety instructions when installing and commissioning the device:

Assembly and installation of the ISYGLT module may only be carried out by a qualified electrician. Other activities in connection with the ISYGLT module, such as assembly and installation of system components with tested standard plug connections, as well as operation and configuration of the ISYGLT module may only be carried out by trained staff.

Observe the electrical installation regulations of the country in which the device is installed and operated as well as its national accident prevention regulations. In addition, observe internal company regulations (work, operating and safety regulations).

Before working on the ISYGLT module system, it must be disconnected from the power supply and secured against being switched on again. After completion of the assembly, installation and maintenance work, an electrical check must be carried out! Check all protective conductor connections and the voltages at all connection plugs as well as at each individual module slot.

2.1. Intended usage

The module is exclusively suitable for blind control in conjunction with ISYGLT system components. Any other use is not intended. The limit values stated in the technical data must not be exceeded under any circumstances. This applies in particular to the permissible ambient temperature range and the permissible IP protection type. For applications with a higher required IP protection type, the ISYGLT module must be installed in a housing or a cabinet with a higher IP protection type.

2.2. Predictable mishandling

The module must not be used in the following cases in particular:
• explosive area
When operating in explosive areas, sparking can lead to deflagration, fire or explosions.

2.3. Safe handling

This module corresponds to the state of the art and the recognised safety regulations. Each device is tested for function and safety before delivery.

Only operate this module in perfect condition in accordance with the operating instructions, the applicable regulations and directives of the country in which the device is installed and operated, and the applicable safety and accident prevention regulations.

The module is intended for distributor installation on a 35mm DIN rail according to EN 60715 in corresponding standard housings. Extreme environmental conditions impair the function of the product.
• Protect module from shocks
• Use module indoors only
• Protect module from humidity

In addition to these safety instructions, you must also observe the special safety instructions listed in the individual chapters for the individual acts.

2.4. Qualification of staff

Assembly, commissioning, operation, maintenance, decommissioning and disposal may only be carried out by qualified staff. Work on electrical parts may only be carried out by a trained electrician in accordance with the applicable regulations and directives. Other activities in connection with the ISYGLT module, such as assembly and installation of system components with tested standard plug connections, as well as operation and configuration of the ISYGLT module may only be carried out by trained staff.

2.5. Changes to the product

Unauthorized modifications to the ISYGLT module which are not described in this or the other applicable instructions can lead to malfunctions and are prohibited for safety reasons.

2.6. Use of spare parts and additional equipment

The module may be damaged if unsuitable spare parts and additional equipment are used. Only use original spare parts and additional equipment from the manufacturer.

2.7. Liability notes

SEEBACHER accepts no liability or warranty whatsoever for damage and consequential damage caused by non-compliance with the technical regulations, instructions and recommendations. SEEBACHER shall not be liable for any costs or damage incurred by the user or third parties as a result of the use of this equipment, in particular improper use of the equipment, misuse or malfunction of the connection, malfunction of the equipment or connected devices.

SEEBACHER accepts no liability for printing errors.

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3. Warranty

We provide warranty within the framework of the statutory provisions. These are limited to the intended use of the module and refer to the repair or replacement of the ISYGLT module. Please send the device with an attached error description to our company address given below.

4. Declaration of Conformity

The valid declaration of conformity for the module can be requested from us free of charge by stating type and article no. as follows:
By phone: +49(0)8041/77776
By fax: +49(0)8041/77772
By mail: info@seebacher.de

5. Service address

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6. Maintenance / Care / Disposal

The product is maintenance-free. It is sufficient from time to time to remove any dust deposits. This may only be done in a power-free state.

Disposal (European Union)
Do not dispose of product in household waste! Products with this symbol

must be disposed of according to the EU directive WEEE 2012/19/EU on waste electrical and electronic equipment at the local collection points for waste electrical and electronic equipment!

7. Storage

The product must be stored in a dry place, protected from dirt and mechanical stress. After damp or dirty storage, the product may only be operated after a condition check by an authorised electrician.

8. Assembly

(Only by certified electrician!)
Mount the product only when it is in a power-free state!
Switch off the power supply, check that there is no voltage, secure against being switched on again!
The device may only be operated at voltages according to the technical data and loaded with the currents defined therein. Only use suitable equipment (system power supplies).

Check that there are no loose parts in the product. If this is the case and the presence of such parts is not explicitly described, do not install or commission the product.
Only use suitable cables and fixing screws.

Assembly site
- The product can be installed in any position in a casing to be determined by the electrician (distribution box, switch cabinet). Observe maximum ambient temperature!

Assembly steps
(Read completely before assembly!)
- Mount the device in a suitable casing.
- Make the electrical connections according to the wiring diagram.
- Configure the DIP switches according to your requirements.
- Only after a complete connection and a visual test by a qualified electrician, the system may be put under voltage.

9. Product description

The module is used to control and position slat blinds with 230V AC motors and can work in 3 basic operating modes:

1. One blind with two motors, at the bottom for glare protection and at the top for light control (software version „LL2“)
2. Two blinds with one motor each as glare protection or shading (software version „VS2“)
3. Two vertical blinds with one motor each for glare protection and shading (software version „VJ2“)

The module has 4 relay outputs (0.05 - 2A) for direct connection of the 2 blind motors. The module automatically determines the calibrated running time of the motors during each run. The slat adjustment is processor-controlled with a computer accuracy of 256 steps for the setting of 0-180°.

Programming and configuration of the blind module is very easy with our programming software ProgramDesigner (from ProgramDesigner version 4.10, master version V4.76; Compiler V4.75). The specific parameters of the individual blinds are transferred to the blind module via the master module. The current signalling of the relay states for controlling both blind motors takes place via LEDs.

Inputs / Outputs

- 4 relay outputs, 230V/2A, for 2 blind motors
- 4 inputs (no BUS function)
  The inputs on the module can be used for local buttons. However, these are not transmitted to the master, but are in „or“-function with the BUS button commands for Up/Down.

Function displays

- 1 red LED indicates the operating voltage
- 1 yellow LED indicates by flashing the communication with the master via the subnet; fast flashing (4Hz) indicates a faulty parameter memory, please transfer parameters again
- 4 green LEDs indicate the status of the relays for controlling the blind motors

Design

- Plastic housing light grey, can be snapped onto 35mm DIN rail, 4 HP

Special function DIP switch 1

- Reserve
  - Switch must be set to OFF

Operating modes

The blind module JSM-02C-230V-2A operates in 4 operating modes (modes 1-4), which are set by the outputs Ax.7 and Ax.8 from the master module.

Operating mode	Function	Status Ax.7	Status Ax.8
Mode 1	Manual operation	0	0
Mode 2	Automatic operation	1	0
Mode 3	Set point operation	0	1
Mode 4	I/O operation	1	1

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Operating mode 1 - Manual operation
This mode is used for manual driving of the blinds.
The following functions are possible:

- Direct control of the output contacts by means of a programmatic link in the master.
  Example: COPY > Ax.1 = Ex.1 (Ax.1 stands for the output contact of the blind module, Ex.1 stands for a button, e.g. on site)
  Pressing the button short causes an angular step (angle can be parameterised).
  Pressing the button long causes the continuous run after 1 second until the limit stop or manual stop.
  Pressing the button while driving causes to stop immediately.

- When reversing the direction of the blind, the pause time between the direction change can be set by a time parameter (register „Jalousiemotorsetup“, parameter „Verzögerung bei Richtungswechsel“). This allows the minimum pause time prescribed by the respective blind manufacturer to be observed when changing direction.

- The outputs Central Up and Down (Ax.5, Ax.6) have absolute priority (alarm, fire brigade, escape routes...). This function affects both blind motors. If, for example, „Central Up“ is actuated and held, this overrides all movement functions and the blind moves upwards. The command is triggered by a pulse. The manual driving functions can also be locked with permanent contact.

- The blocking protection (register „Jalousiemotorsetup“, parameter „Zeit Blockierschutz“) is used to protect the blind motors. If the drive does not reach its limit stop within the set time, the contact of the module is switched off. This is signalled via the signal input Ex.7 and can be further processed in the Master. A new drive release is only possible by simultaneously pressing the up/down button, changing the mode, activating the wind/rain monitor or the central function.

- The rain protection is activated by the Master via a bit within the weather data (see description ProgramDesigner). If the rain bit is set by the Master module, the blind moves upwards immediately (evaluation can be set in the register „Wetterschutz“ with the parameter „Jalousie xx Regenschutz“).

- In this mode, the wind protection is always active. The blind module receives the current wind speed and wind direction from the Master. If the wind protection is not to be evaluated, e.g. for indoor blinds, 50m/s can be entered for both wind values.

  The response delay time and two speeds (speed 1 and speed 2) are provided as setting parameters (see register „Wetterschutz“). The two speeds are assigned to the evaluation directions (N, NO, O, SO, S, SW, W, NW). In this way the blinds can be protected facade by facade, depending on the wind direction, without all blinds having to be moved upwards immediately.

  If the wind speed exceeds the set thresholds and delay times, the blinds automatically move upwards and remain locked until the wind speed falls below the set threshold. When the wind protection is activated, the blocking protection is automatically reset. If the measured wind speed is twice as high as the set threshold value, the wind protection is activated without time delay.

  The locking by the wind protection is reported to the BMS system (Ex.6).

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Operating mode 2 - Automatic operation

In this mode, the blind is moved fully automatically and the slat angle is adjusted. The following functions are possible:

- The blind is lowered when all conditions in Table 1 (see below) are given or when all conditions in Table 2 are given. Table 2 has a higher priority. If both conditions (Table 1 and Table 2) are given, the slat angle is always calculated by the condition of Table 2 (forced shading). This function is identical for both blinds, but the parameters can be set individually.

  If none of the conditions is fulfilled, the blind moves to the defined starting position „Top“ or „Below“ with a defined angle and a definable night position (parameter in the register „Allgemein“). See also „Special functions in automatic operation“.

- When reversing the direction of the blind, the pause time between the direction change can be set by a time parameter (register „Jalousiemotorsetup“, parameter „Verzögerung bei Richtungswechsel“). This allows the minimum pause time prescribed by the respective blind manufacturer to be observed when changing direction.

- The outputs Central Up and Down (Ax.5, Ax.6) have absolute priority (alarm, fire brigade, escape routes...). This function affects both blind motors. If, for example, „Central Up“ is actuated and held, this overrides all movement functions and the blind moves upwards. The central functions must be programmed as permanent contacts. The motors run as long as the command is pending and stop when it is cancelled.

- The blocking protection (adjustable via the parameter „Zeit Blokkierschutz“ in the register „Jalousiemotorsetup“) is used to protect the blind motor. If the drive does not reach its limit stop within the set time, the contact of the module is switched off. This is signalled via the signal input Ex.7 and can be further processed in the Master. A renewed run release is only possible by a mode change or the response of the wind/rain monitor.

- The rain protection is activated by the Master via a bit within the weather data (see description ProgramDesigner). If the rain bit is set by the Master module, the blind moves upwards immediately.

- In this mode, the wind protection is always active. The blind module receives the current wind speed and wind direction from the Master. If the wind protection is not to be evaluated, e.g. for indoor blinds, 50m/s can be entered for both wind values.

  The response delay time and two speeds (speed 1 and speed 2) are provided as setting parameters. The two speeds are assigned to the evaluation directions (N, NO, O, SO, S, SW, W, NW). In this way the blinds can be protected facade by facade, depending on the wind direction, without all blinds having to be moved upwards immediately.

  If the wind speed exceeds the set thresholds and delay times, the blinds automatically move upwards and remain locked until the wind speed falls below the set threshold. When the wind protection is activated, the blocking protection is automatically reset. If the measured wind speed is twice as high as the set threshold value, the wind protection is activated without time delay.

  The locking by the wind protection is reported to the BMS system (Ex.6).

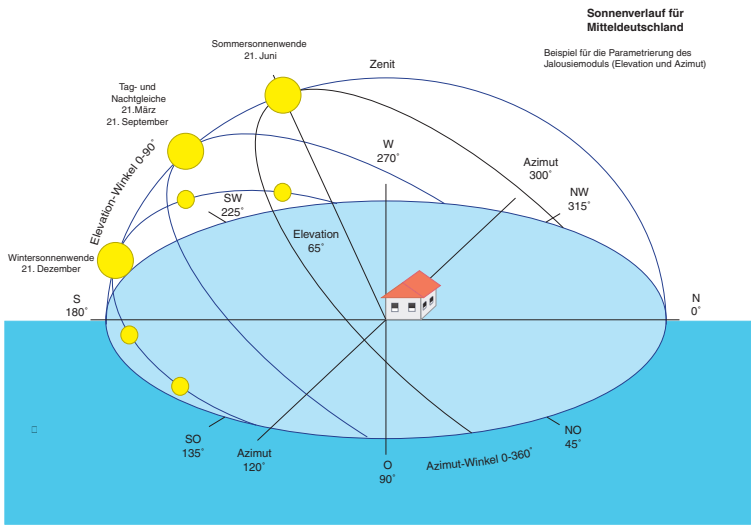

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Table of conditions 1: All conditions in the table are AND functions.

No.	Meaning	Parameter	Register
1	The azimuth (direction from which the sun shines) must lie between the left and right edges of the window.	Azimut Begrenzung links Azimut Begrenzung rechts	Blendschutz
2	The elevation (elevation angle of the sun above the horizon) must lie between the lower and upper viewing angle limits of the window.	Elevation Begrenzung unten Elevation Begrenzung oben	Blendschutz
3	The wind protection must not be active.		Wetterschutz
4	The preset shading light intensity must be reached.	The calculation of the shading light intensity is described later.	Beschattung

Table of conditions 2: All conditions in the table are AND functions.

No.	Meaning	Parameter	Register
1	The wind protection must not be active.		Wetterschutz
2	One of the two forced shading light intensities must be reached.		Beschattung

Slat angle calculation if the conditions in Table 1 are fulfilled

For the calculation there is a parameter table (parameter 50-59), which contains the slat angles depending on the elevation (elevation angle of the sun above the horizon).

The resolution of this table is 10°, related to the elevation. Thus for all elevation values from 0 to 90°, at a distance of 10°, a corresponding slat value can be stored. If the sun is between the elevation values graded in 10°, the slat angle is interpolated. Thus, different driving strategies can be realized depending on the elevation. By default, the table values are set so that the slats are always at 90° to the sun, i.e. provide the greatest possible glare protection. If the blind is to allow some sunlight through even when the sun is shining, the following values have proved their worth:

Parameter	Slat angle
Elevation 0 grd	15 grd
Elevation 10 grd	25 grd
Elevation 20 grd	35 grd
Elevation 30 grd	45 grd
Elevation 40 grd	55 grd
Elevation 50 grd	65 grd
Elevation 60 grd	75 grd
Elevation 70 grd	85 grd
Elevation 80 grd	90 grd
Elevation 90 grd	90 grd

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To include indirect glare, e.g. from opposite window surfaces, in the shading or glare protection, there are still 5 glare areas available in the register „Blendschutz“.

Parameter	Value
Art Steuerung Lamelle	Direkt Elevation (or fixed angle)
Azimut Begrenzung links	e.g. 90 grd
Azimut Begrenzung rechts	e.g. 35 grd
Elevation Begrenzung unten	e.g. 1 grd
Elevation Begrenzung oben	e.g. 90 grd

To implement daylight control systems, the correct slat angle for the respective elevation angle must be specified by the manufacturer of the blind or determined by testing (e.g. in manual operation).

Slat angle calculation if the conditions in Table 2 are fulfilled

The slat angle assigned to the respective forced shading light intensity is approached. The activation of forced shading is reported back to the BMS system.

Calculating the shading light intensity

The currently measured brightness value of the light sensor from the set evaluation direction is used for calculation. To avoid swinging, the delay time for shading and unshading can be set separately. The measured outdoor light value is smoothed by a time filter.
The outdoor light value can also be changed by the BMS system. The scaling of the outdoor light value is enabled in the register „Allgemein“. This option is intended for special applications. For standard applications, this parameter should be set to „nicht verwenden“.

Parameter	Register
Ansprechzeit (Verzögerungszeit) (Sekunden) Verschatten	Allgemein
Ansprechzeit (Verzögerungszeit) (Sekunden) Entschatten	Allgemein
Auswerterichtung Lichtwert	Beschattung

The limit value of the shading light intensity depends on the current elevation. If the elevation is less than 0°, the shading light intensity is automatically considered not to have been reached.
The light threshold value is determined from the following 4 elevation limit values:

Parameters to be used	Value	Register
Elevation 0 bis 9 grd	3 klx	Blendschutz
Elevation 10 bis 29 grd	10 klx	Blendschutz
Elevation 30 bis 59 grd	30 klx	Blendschutz
Elevation 60 bis 90 grd	40 klx	Blendschutz

Special functions in automatic operation

Parking position:
In automatic operation, the blind can be moved to a predefined slat angle if one of the above conditions is not met. The blind can thus be lowered generally during the day, for example, even if the outside light is lower than the specified threshold value.
Night position:
If the outdoor light value defined in the parameter is not reached and after the specified time has elapsed, the blind can, when enabled (parameter), assume an angle defined by parameter (see register „Allgemein“).

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Operating mode 3 - Set point operation
In this mode the blind slat angle is adjusted by the Master. This is required if, for example, cleaning positions or separately programmable controls are to be implemented in which the slats are to be set to defined angles.

- The blind slat angles are specified directly by the Master for both blinds via the AAx.1 analog control channel. The values 0-180 correspond to the angle positions 0-180°. The 0° position is closed, at the bottom. If the value is 255, the blinds move upwards.
  Control pulses (readjust the slats) are only output to the blind if the difference between the setpoint angle and the actual value angle is greater than the angle value specified in the parameter.

- When reversing the direction of the blind, the pause time between the direction change can be set by a time parameter. This allows the minimum pause time prescribed by the respective blind manufacturer to be observed when changing direction.

- The outputs Central Up and Down (Ax.5, Ax.6) have absolute priority (alarm, fire brigade, escape routes...). This function affects both blind motors. If, for example, „Central Up“ is actuated and held, this overrides all movement functions and the blind moves upwards. The central functions must be programmed as permanent contacts. The motors run as long as the command is pending and stop when it is cancelled.

- The blocking protection (adjustable via the parameters in the register „Jalousiemotorsetup“) serves to protect the blind motor. If the drive does not reach its limit stop within the set time, the contact of the module is switched off. This is signalled via the signal input Ex.7 and can be further processed in the Master. A renewed run release is only possible by a mode change or the response of the wind/rain monitor.

- The rain protection is activated by the Master via a bit within the weather data (see description ProgramDesigner). If the rain bit is set by the Master Module, the blinds move upwards immediately (evaluation can be set with parameters).

- In this mode, the wind protection is always active. The blind module receives the current wind speed and wind direction from the Master. Setting is possible separately for both blind motors. If the wind protection is not to be evaluated, e.g. for indoor blinds, 50m/s can be entered for both wind values.

  The response delay time and two speeds (Speed 1 and Speed 2) are provided as setting parameters. The two speeds are assigned to the evaluation directions (N, NO, O, SO, S, SW, W, NW). In this way, the blinds can be protected facade by facade, depending on the wind direction, without all blinds having to be moved upwards immediately.

  If the wind speed exceeds the set thresholds and delay times, the blinds automatically move upwards and remain locked until the wind speed falls below the set threshold. When the wind protection is activated, the blocking protection is automatically reset. If the measured wind speed is twice as high as the set threshold value, the wind protection is activated without time delay.

  The locking by the wind protection is reported to the BMS system (Ex.6).

Operating mode 4 - I/O operation
In this mode the module works like a normal switching module.

- The outputs are addressed directly by the Master. Even in this mode, both outputs (Up and Down) cannot be active simultaneously, as the relay outputs are additionally locked against each other on the hardware side. If both outputs are set, the blind module switches off both relay contacts.

- No central function
- No blocking protection evaluation
- No rain monitor evaluation
- No wind monitor evaluation

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Register „Synchronisation“

In general, each blind module works independently. During commissioning, the parameters determine where the blind is located and which positions of the sun are to be expected. The module determines its driving strategies from the weather data supplied via the BUS. If several modules are in operation on one side of the facade, they may work with a slight delay. To prevent this, a module can be used for synchronisation.

Parameter	Value
Art Steuerung Lamelle	Direkt Elevation (or fixed angle)
UP/DOWN-Sync Jalousie 1	Ein/Aus
UP/DOWN-Sync Jalousie 2	Ein/Aus
Blind module, to which is synchronised	Adr. xxx Jx

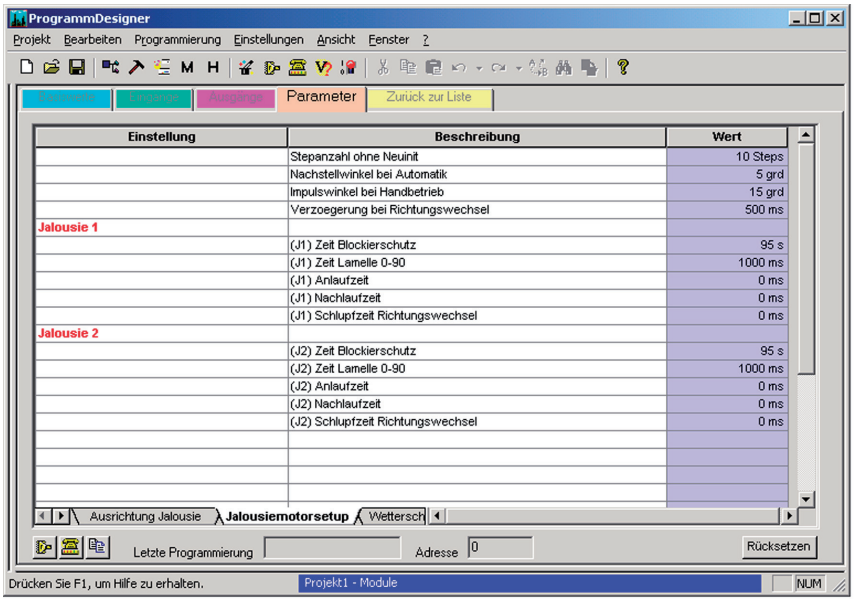
Commissioning

Preparation:

- To calibrate the blind you need either a test panel or handheld transmitter with the UP/DOWN buttons for each blind motor. Very advantageous is also the simulation possibility of the brightness east, south, west and north, as well as elevation, azimuth and wind speed.
- The blind motors must be connected because the currents are determined during operation. Without a motor, the blind module detects an error and does not switch on the outputs.
- Compass for alignment of the central daylight sensor ZTLS-04.
- The central daylight sensor, SUN-PRO-01, DCF-77 radio clock and, if available, wind speed sensor, wind direction sensor and rain sensor must be installed and configured to provide the specific data to the blind module via the subnet.
- The exact location of the building must be known.
- Floor plans with the drawn position of the blinds must be available.
- Protractor to determine directions and sun position angles.

The position of the blind is determined exactly from the floor plan. The following data are necessary for each blind:

„Azimut Begrenzung links“	from when the sun reaches the window, e.g. 40°
„Azimut Begrenzung rechts“	until when the sun reaches the window, e.g. 230°
„Elevation Begrenzung unten“	lowest sun position Default 0° or determine (hill or building in front of it)
„Elevation Begrenzung oben“	highest sun position Default 90° or determine (canopy)



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- Motor setup >> Set „Zeit Blockierschutz“ to maximum (255s) for the first run of the blind.
- Move the blind down.
- Move the blind up and determine the total runtime of the blind.
- Add a safety time of 10s to the measured runtime, enter in the setup menu at „Zeit Blockierschutz “ and transfer to the module (button with D-SUB plug symbol below left).
- Set „Impulswinkel bei Handbetrieb“ to 90° and transmit.
- Now move (tap) with the test panel step by step.
  > 1. step, the blind should be horizontal.
  > 2. step, the blind should be tilted completely inwards.
- Enter values in the motor setup at „Zeit- Lamelle 0-90°“
  (This value must be determined by approximation).
- Adjust values until after the 2. step the blind does not lift yet, but also does not close any further.
- Set „Impulswinkel bei Handbetrieb“ to 10° and transmit.
- Now the horizontal must be reached by pressing 9 times (9x10° = 90°) and by pressing 9 times again (18x10° = 180°) the blind must be tilted completely inwards.
- If the blind is not yet fully closed after pressing 18 times, a value must be entered in the „Anlaufzeit “ parameter (e.g. 3ms).
- If the blind is closed completely too early, a value must be entered in the „Nachlaufzeit “ parameter (e.g. 2ms).
  Note: Only „Anlaufzeit“ or „Nachlaufzeit“ may be set!
- These values must also be determined by repeated tries.
- The second motor is adjusted as described before.
- At the end of the motor setup, 15° is set in „Impulswinkel bei Handbetrieb“ and transmitted.
- Wind protection parameters can be obtained from the blind manufacturer (for indoor blinds set this value to 50m/s).

For the remaining parameters, we recommend working with the default values and correcting them if necessary.

Troubleshooting

For problems with the blinds:
All parameters are correct, but the blind does not move into the angle or stops before...

!!! Check runtime !!!
The motor may have run into the blocking protection. This can only be cancelled by changing the mode (e.g. from automatic to manual operation or vice versa) or by pressing the „UP/DOWN“ button simultaneously. The 7th input bit (Ex.7) is set by the blind module to signalise the blocking protection!

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10. Technical data

Type designation	JSM-02C-230V-2A
Article no.	80022512
Operating voltage	16-35V DC, 16-27V AC
Current consumption	max. 60mA at 24V; 80mA at 16V
Outputs	4 relay outputs 250V, min. 50mA, max. 2A
Output voltage	250V AC per output
Output current	min. 50mA (due to end position detection) max. 2A
Isolation voltage	Outputs - BUS 1000V
Subnet (RS-485)	max. 5.6V limitation by Z-diodes
Dimensions	WxHxD 71x90x59mm (4 HP)
Weight	190g
Connection	Screw terminals 2.5mm², pluggable, BUS connector
Operating temperature	0°C to +50°C
Storage temperature	-25°C to +70°C
Humidity	0-85% r. h. non condensing
Protection class	when not installed IP 30
CE mark	yes

10.1. Pin assignment

9-pole plug top

E1	Not assigned
E2	Not assigned
E3	Not assigned
E4	Not assigned
CE	Not assigned
B	Subnet (BUS B, RS-485)
A	Subnet (BUS A, RS-485)
0V	Operating voltage
Ub	Operating voltage

8-pole plug below

L	Common connection for relay outputs (internally fused with fine-wire fuse 6.3A)
A1	Blind motor glare protection UP
A2	Blind motor glare protection DOWN
A3	Blind motor light guidance UP
A4	Blind motor light guidance DOWN
EJ1	Not assigned
EJ2	Not assigned
CEJ	Not assigned

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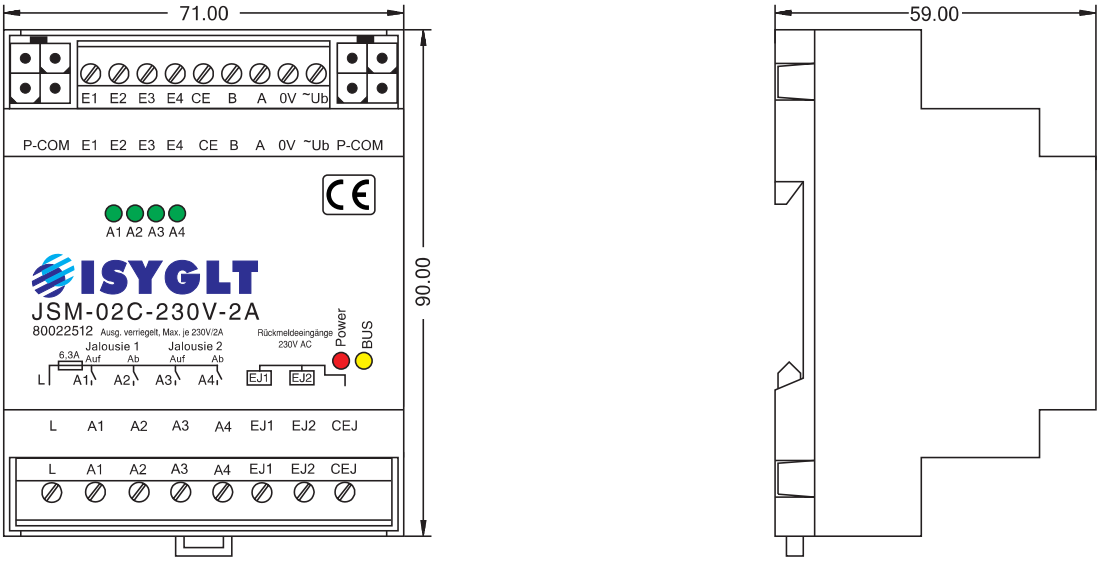
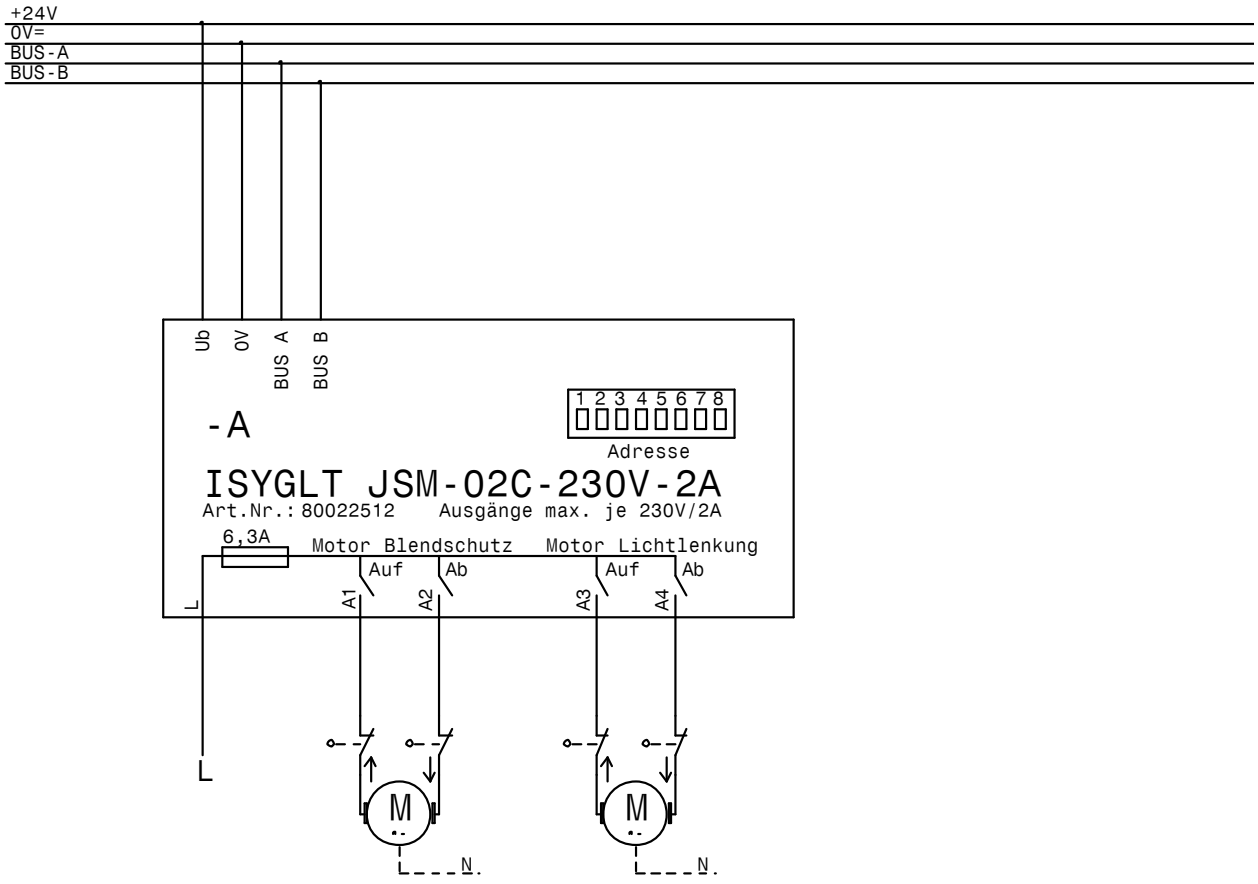
View



11. Wiring diagram



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